CENTER FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

EVALUATION REPORT

STUDY FIELD

ELECTRICAL ENGINEERING

at Vilnius Gediminas Technical University Vilnius Tech

Expert panel:

1. **Prof. Dr. Toomas Rang (panel chairperson)** *academic,*
2. **Prof. Dr. Marko Čepin,** *academic,*
3. **Dr. Isabelle Avenas-Payan,** *representative of social partners,*
4. **Dr. Dainius Balbonas,** *academic,*
5. **Dr. Rolandas Urbonas,** *representative of social partners'*
6. **Mr. Ruben Janssens,** *students' representative.*

Evaluation coordinator – *Ms. Natalija Bogdanova*

Report language – English

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Study Field Data*

Title of the study programme	***Automation***	***Electrical Energetics Engineering***
State code	*6121EX041*	*6121EX042*
Type of studies	University studies	University studies
Cycle of studies	First	First
Mode of study and duration (in years)	Full-time, 4	Full-time, 4
Credit volume	240	240
Qualification degree and (or) professional qualification	Bachelor of Engineering Sciences	Bachelor of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian
Minimum education required	Secondary	Secondary
Registration date of the study programme	1997-05-19	2016-04-05

Title of the study programme	***Automation***	***Electrical Energetics Systems Engineering***
State code	*6211EX048*	*6211EX049*
Type of studies	University studies	University studies
Cycle of studies	Second	Second
Mode of study and duration (in years)	Full-time, 2	Full-time, 2
Credit volume	120	120
Qualification degree and (or) professional qualification	Master of Engineering Sciences	Master of Engineering Sciences
Language of instruction	Lithuanian	Lithuanian, English
Minimum education required	Secondary	Bachelor of Engineering Sciences
Registration date of the study programme	1997-05-19	2006-11-16

** if there are **joint** / **two-fields** / **interdisciplinary** study programmes in the study field, please designate it in the foot-note*

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I. INTRODUCTION

1.1. BACKGROUND OF THE EVALUATION PROCESS

The evaluation of study fields is based on the Methodology of External Evaluation of Study Fields approved by the Director of Centre for Quality Assessment in Higher Education (hereafter – SKVC) 31 December 2019 Order No. V-149.

The evaluation is intended to help higher education institutions to constantly improve their study process and to inform the public about the quality of studies.

The evaluation process consists of the main following stages: *1) self-evaluation and self-evaluation report prepared by Higher Education Institution (hereafter – HEI); 2) site visit of the expert panel to the higher education institution; 3) production of the external evaluation report by the expert panel and its publication; 4) follow-up activities.*

On the basis of the external evaluation report of the study field SKVC takes a decision to accredit study field either for 7 years or for 3 years. If the field evaluation is negative such study field is not accredited.

The study field and cycle are **accredited for 7 years** if all evaluation areas are evaluated as "exceptional" (5 points), "very good" (4 points) or "good" (3 points).

The study field and cycle are **accredited for 3 years** if one of the evaluation areas was evaluated as "satisfactory" (2 points).

The study field and cycle are **not accredited** if at least one of evaluation areas was evaluated as "unsatisfactory" (1 point)

1.2. EXPERT PANEL

The expert panel was completed according to the Experts Selection Procedure (hereinafter referred to as the Procedure) approved by the Director of Centre for Quality Assessment in Higher Education 31 December 2019 Order No. V-149. The site-visit to the HEI was conducted on-line by the panel on *26th November 2020.*

Prof. Dr. Toomas Rang (panel chairperson) *professor of Tallinn University of Technology, Institute of Informatics, Estonia;*

Prof. Dr. Marko Čepin, *professor at University of Ljubljana, Faculty of Electrical Engineering, Slovenia;*

Dr. Isabelle Avenas-Payan, *member of the French Quality Assurance Commission for Engineering Study Programmes (CTI),France;*

Dr. Dainius Balbonas, *lecturer of Šiauliai University, Head Engineering Study Programs Committee, Lithuania;*

Dr. Rolandas Urbonas, *Lithuanian Energy institute, Deputy Director, Lithuania;*

Mr. Ruben Janssens, *student of Ghent University, study programme in Computer Science Engineering, Belgium*

1.3. GENERAL INFORMATION

The documentation submitted by the HEI follows the outline recommended by the SKVC. Along with the self-evaluation report and annexes, no additional documents have been provided by the HEI before, during and/or after the site-visit.

1.4. BACKGROUND OF STUDY FIELD/STUDY FIELD PLACE AND SIGNIFICANCE IN HEI

Vilnius Gediminas Technical University (VGTU) is a state higher education institution, established by the Parliament (Seimas) of the Republic of Lithuania. University is a public legal entity. VGTU is one of the biggest higher education institutions in Lithuania and one of the leading universities in the Baltic States in the field of technical and engineering. The structure of university is formed of faculties, departments, research and training laboratories, research and academic institutes and centres, a library, publishing office, administration and other offices. In the VGTU the majority of the study programs belong to the field of engineering. University operates in 29 study fields and the following groups of study fields: Engineering, Informatics, Mathematics, Technologies, Social Sciences, and Business and Public Management, Humanities, and Arts.

The most important unit for study organization is the Faculty. The Dean manages the Faculty. He is supported by the Dean's office, which includes the Dean, Head of Faculty Council, Vice-Deans and Heads of Departments. There are three Vice-Deans in the Electronics Faculty: for first cycle, second cycle and science.

First cycle (Bachelor's degree) Study Programs (SP) have been started within the Electrical Engineering (EE) Study Field (SF) in 1997 and in 2016, respectively. Second cycle (Master's degree) SPs have been implemented within the SF of EE in 1997 and in 2006, respectively. The SF of EE runs today four SPs, two of them on bachelor and 2 on master levels. The Bachelor SPs of EE are "Automation" and „Electrical Energetics Engineering". One of the Master SPs in SF of EE is titled as „Automation" and has two specializations „Automatic systems" and „Automation of mechatronic systems". Another Master SP of EE is titled as „Electrical Energetics Systems Engineering", and has two specializations „Renewable electrical energetics engineering (taught in English) ", and „Electrical energetics technologies". The Electrical and Electronic Engineering field of science (code T 001) is directly linked to the SF of EE being evaluated recently. For both study cycles, the latest SP evaluation took place in 2015.

II. GENERAL ASSESSMENT

Electrical Engineering study field and **first cycle** at Vilnius Gediminas Technical University VilTech is given **positive** evaluation.

Study field and cycle assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation of an area in points*
1.	Study aims, outcomes and content	3
2.	Links between science (art) and study activities	4
3.	Student admission and support	4
4.	Studying, student performance and graduate employment	4
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and publicity	4
	Total:	**27**

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;
2 (satisfactory) - meets the established minimum requirements, needs improvement;
3 (good) - the field develops systematically, has distinctive features;
4 (very good) - the field is evaluated very well in the national and international context, without any deficiencies;
5 (exceptional) - the field is exceptionally good in the national and international context/environment.

Electrical Engineering study field and **second cycle** at Vilnius Gediminas Technical University VilTech is given **positive** evaluation.

Study field and cycle assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation of an area in points*
1.	Study aims, outcomes and content	4
2.	Links between science (art) and study activities	4
3.	Student admission and support	4
4.	Studying, student performance and graduate employment	4
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Study quality management and publicity	4
	Total:	**28**

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;
2 (satisfactory) - meets the established minimum requirements, needs improvement;
3 (good) - the field develops systematically, has distinctive features;
4 (very good) - the field is evaluated very well in the national and international context, without any deficiencies;
5 (exceptional) - the field is exceptionally good in the national and international context/environment.

III. STUDY FIELD ANALYSIS

3.1. STUDY AIMS, OUTCOMES AND CONTENT

Study aims, outcomes and content shall be assessed in accordance with the following indicators:

3.1.1. *Evaluation of the conformity of the aims and outcomes of the field and cycle study programmes to the needs of the society and/or the labour market (not applicable to HEIs operating in exile conditions)*

(1) Factual situation

The study aims and outcomes are described in SER for the SF of EE on both the Bachelor and the Master levels and are designed and presented in accordance with the vision, mission, and strategy of the VGTU. The study outcomes are clearly formulated in four groups: knowledge, understanding, special skills, and general abilities. The Study Program outcomes are comparable with similar European Study Programs and correspond to the Study Program aims. Complexity level of the learning outcomes corresponds to qualification requirements described in national and EU documents. The focus of all SPs analyzed in SER show very good accordance with the job market needs. On the Master level, also the scientific side is well visible. The employers' recommendations, seems to be taken into account and agreed with the labour market trends. Access to the SPs aims and key learning outcomes are available on the VGTU website. The information is accessible to the public. According to the SER the Electronics engineers SF were found among the three most in-demand professions in the world after software engineers and developers. The Electrical energetics SPs are among the TOP10 most popular programs in Lithuania, e.g. https://www.ziniuradijas.lt/laidos/atviras-pokalbis/top-10-studiju-programuuniversitetuose-ir-kolegijose?soundtrack=1).

(2) Expert judgement/indicator analysis

The SF of EE at VGTU forms a well-organised study environment that combines practical and research excellence in both, but especially on the second cycle (master) level studies. The proof concludes from the facts that the graduates of both levels of SF of EE get suitable jobs in the industry and in some cases at the research institutions. It is based on the obtained skills needed to get jobs in society, where the students fully use the acquired knowledge. The aims and the outcomes of the bachelor and the master study programme of SF of EE conform to the needs of the society and conforms to the labour market. The previous evaluation report stated some recommendations over the conformity of the SPs, e.g. the suggestion to modernize the content of courses. Clear steps have been reported in the actual SER, e.g. the new green energy oriented courses are introduced. In addition, the titles of courses have been adapted more to the content of the course, which has been released in 2017.

3.1.2. *Evaluation of the conformity of the field and cycle study programme aims and outcomes with the mission, objectives of activities and strategy of the HEI*

(1) Factual situation

Learning outcomes of both cycles of SPs in the SF of EE are logically implemented through the provided courses. In addition, to fulfil the goals of the SPs educating highly qualified electrical engineering specialists, who possess the knowledge of the latest electrical engineering fields' technologies, the programs' objectives are aligned with the courses' learning outcomes.

(2) Expert judgement/indicator analysis

The study aims and learning outcomes of the SPs conform to the declared mission, activity objectives and strategy of VGTU and the Faculty. Nevertheless, in the SER described learning outcomes (page 8 and 9) for the bachelor level SPs some sort of bafflement could be discovered. Namely, the listed outcomes were sorted not in the best possible way, e.g. on the bachelor level for the first learning outcome was named the knowledge of legislation and the corporate management, not the knowledge of trends and principles of innovation in this particular activity field, which is more important for the engineering SPs (for the SP Electrical Energetics Engineering inside the SF). At the site visit, this situation was clarified not in the best way, unfortunately. In addition, the overlapping of courses of both bachelor SPs is clearly high (the differences in the module of main courses is only about 25%), which raises the question whether not to merge both bachelor SPs into one with two specializations. For master level, the learning outcomes were logically ordered and presented. The list of courses for master level studies shows clear differences between all SPs and their specializations.

3.1.3. *Evaluation of the compliance of the field and cycle study programme with legal requirements*

(1) Factual situation

The SPs in SF of EE are implemented in accordance with the national legal acts (10 of them are stated in SER). Additionally, the list of two tables of compliance for both study levels are presented in SER.

(2) Expert judgement/indicator analysis

The learning outcomes for the first and second study cycle are in consensual agreement of all legal documents to be followed by the university, faculty and the SF of EE. SER describes in sufficient depth all the required professional activity fields, e.g. the Table 1 on page 10 describes the clear match of summarized credits of modules with required legal acts for both study cycles in the SF of EE. The implementation of applied and basic research results seems to be applied for development of learning outcomes. The requirements for personal and professional development and values are described in the SER of VGTU. The degrees at the SF

of EE at VGTU conforms to legal requirements on qualification degrees. The name of the qualification degree corresponds duly to the name of the SF. In addition, the SPs structure agrees with all legal criteria.

3.1.3. *Evaluation of compatibility of aims, learning outcomes, teaching/learning and assessment methods of the field and cycle study programmes*

(1) Factual situation

As stated in SER, the graduates of the SPs within the SF of EE will be able to apply the knowledge of electricity production, transmission and safety management in developing and operating new electrical energetics supply systems, automate and maintain automatic systems. Annex 3 of SER gives a clear picture and explains the links between the aims, learning outcomes, teaching/learning methods and assessment criteria in both cycle level SPs in the SF of EE. No specific drawback can be mentioned.

The all basic study methods like lectures, laboratory works, individual projects, problem solving, group works, discussions, problem-based learnings, and some others are applied to achieve the study results of the both cycle courses within the SPs in SF of EE.

The assessment method of the study results of the subject is related to assessment of knowledge, assessment of understanding and assessment of the abilities of students in sense to solve problems.

(2) Expert judgement/indicator analysis

The composed SER and the site visit proved clearly that the aims, the learning outcomes, the teaching and learning methods, the assessment methods of all courses are reasonably written and consistently set together for both study levels. The descriptions of the study courses and the study outcomes of the courses agree with the SPs outcomes for both study cycles.

The aims, the learning outcomes, the teaching and learning methods, the assessment methods of all courses are well described and they form a logic system together. The study methods on both study levels are applied to achieve the study results within the SF of EE at the faculty of VGTU and are reasonable and appropriate. The descriptions of the study courses and the results together with the methods of evaluation of laboratory works of presented SPs if the SF of EE form a reasonable, appropriate and compatible set of measures for SF of EE. The overall assessment methods of the study results are related to assessment of knowledge, of understanding and of the abilities of students to solve problems.

3.1.4. *Evaluation of the totality of the field and cycle study programme subjects/modules, which ensures consistent development of competences of students*

(1) Factual situation

As it is stated in SER, the studies in the SF of EE aims at educating specialists who are able to apply comprehensive quantitative and qualitative analysis and research methods in their professional activities, as well as design and analyze. Abilities to independently select and apply analytical and modelling methods, solve practical problems, take responsibility for planning, organization control and assessment of their own and team's work, demonstrate a motivated attitude towards their profession in the field of electrical engineering are gradually developed throughout the programs.

The SER describes in detail the situation inside the SF of EE going down to all SPs and their specializations. For example, for all SPs for both study cycles of the SF of EE the summarized description of consistent development of competences of the students have been developed and are presented. All the approaches are aligned to the VGTU strategic development plan 2019-2021.

(2) Expert judgement/indicator analysis

Annex 1A-1C and 2A of SER provide all needed information of courses forming the SF of EE and being the source of building up the core competencies for students. These tables give clear understanding of courses forming the SPs for the SF of EE and offered to the students. It sees clearly that the competences of students will be developed in a rational and consistent way on all study levels in the SF of EE.

The bachelor studies at VGTU last 4 years, which is some sort of additional threshold for the youngsters graduating the Colleges, where the bachelor studies' duration is 3 years. To continue in master level studies the flatten courses should be taken by the student candidates from Colleges. These courses, as clarified during site visits, are prized. Course fee in this particular case is not fair, when we are talking about the low number of admission of students on both study levels being a general problem for engineering studies in Lithuania.

The topics of final theses in all levels of SPs inside the SF of EE are on a very good level. Proof for this is when looking for example the titles and content of final theses as much we could to follow the theses written in major cases in Lithuanian language.

Students and graduates reported to the experts that in the Masters' programme of Electrical Energetics, the number of electronics-related subjects may be too large and some subjects may be unnecessary. It can be useful for the university to evaluate whether this is in accordance with the aims of the study programme.

3.1.5. *Evaluation of opportunities for students to personalise the structure of field study programmes according to their personal learning objectives and intended learning outcomes*

(1) Factual situation

The students from the SF of EE have an opportunity to individualize the development of basic and subject competences given to students, as it is stated in SER. Students are choosing modules according to the study program plans within the Study field. The volume of electives for first and second cycle is settled and directed by the VGTU and Faculty rules. The VGTU information system helps the students to handle this opportunity. The final thesis on both study levels are always individualized.

(2) Expert judgement/indicator analysis

Clear and logic algorithms are described in SER and confirmed during site visits that the students can personalize their studies according to their personal interests and intended learning outcomes in different ways, as it is stated in the introduction of SPs in SF of EE. The personalization applies for both first and second level studies. For example, there is an opportunity to choose the elective or interdisciplinary courses offered by other faculties of VGTU. Also, the advanced language courses can be chosen. However, the larger freedom for choosing the elective courses could broaden the mind of students and increase their competitiveness on the labour market.

3.1.6. *Evaluation of compliance of final theses with the field and cycle requirements*

(1) Factual situation

As mentioned already in evaluation of previous sections the topics of final theses are always personalized, which is stated in SER as well. The final thesis is a student's independent work on the research, applied or creative project performed at the end of the SP and demonstrating the abilities consistent in the objectives of the program. The legal base for this approach gives the Document titled „Final Thesis Preparation and Defence Procedure was approved by the VGTU Rector's Order No. 10.8-575 as of 12 June 2019".

The defence is a public act and takes place at the meeting of the SF of EE qualification commission. The evaluation commission members are competent scientists of the SF, professional practitioners, and representatives of employers.

(2) Expert judgement/indicator analysis

The existing documents define the rules for the process of thesis conduction: preparation, defence, evaluation and storage of final projects. The documents are detailed and they are

focused on the quality of the theses. The topics of the final theses are openly accessible to all students, which guarantees the equal handling of all students. After choosing the topic for the final thesis students consult their supervisors and during the preparation period according to the requirements and guidelines the composition of the final thesis takes place. Thesis defence procedure is well determined for all possible scenarios. Defence Commission consists of competent scientists of the SF, representatives from the industry, and professionals of social partners. The rule that at least one member needs to be outside of the main institution is an important feature for the quality of the work and of the defence procedure generally.

The quality of final theses from both study cycles are high enough. The topics are well chosen and have good practical character and content. However, more topics should be taken in from the industry.

Recommendations for this evaluation area: To continue with all major innovative actions taking place during the period after previous evaluation in the field of study aims, learning outcomes and content of the SF of EE.

3.2. LINKS BETWEEN SCIENCE (ART) AND STUDY ACTIVITIES

Links between science (art) and study activities shall be assessed in accordance with the following indicators:

3.2.1. *Evaluation of the sufficiency of the science (applied science, art) activities implemented by the HEI for the field of research (art) related to the field of study*

(1) Factual situation

According to the SER, the report composed by the Research and Higher Education Monitoring and Analysis Centre (Lith. Mokslo ir studijų stebėsenos ir analizės centras, MOSTA) titled as "Research and development in Lithuania (2019)", the VGTU is the second biggest university in Lithuania, specialized in technological sciences, which is shown on Figure 7, page 26. University has similar average R&D quality indicators as Kaunas University of Technology.

The R&D activities connected to the SF of EE has separately evaluated by MOSTA and the VGTU Faculty of Electronics has received the highest rating in the Electrical and Electronic Engineering field of science (code T 001) in Lithuania.

According to the SER, the members of the teaching staff for SF of EE actively participate in scientific activities. Several national and international scientific and development projects are carried out. International activities are conducted together with several partner institutions

across European countries. Also inland academic cooperation exists, e.g. with teachers from KTU and VTDC. The financial base for the research activities has increased over the last years.

(2) Expert judgement/indicator analysis

The general level of R&D activities are on a very high level, even internationally. By the MOSTA report, the R&D indicators were rated 3 out of 5. In Lithuania the VGTU generally, but also the research around the SF of EE does in excellent way. VGTU together with KTU form the leading core for the R&D activities in the field of EE. It is clear that some improvements could be suggested taking into account the rapid development of the research field itself. The quality of international publications is generally high, e.g. different IEEE Transaction journals (with very high ratings), and international and domestic leading conferences (like Electronics and Electrical Engineering and others). However, some of the papers are not directly matching with the activity field of Electronics and Electrical Engineering.

Positive is that very close domestic cooperation with Vilnius College of Technology and Design exists. Nevertheless, a better clearness is needed to be stated in the future, which research work at which institution has been made and to whom belong the results of the research. The research work matches well with SF, especially with the topics of final theses on second study level.

3.2.2. *Evaluation of the link between the content of studies and the latest developments in science, art and technology*

(1) Factual situation

According to the SER and during site visits discussions with teaching staff allow to state that connection between the R&D results and the SF of EE courses clearly exists for a major part of the teaching staff. However, in some cases it seems that the research work was performed in the research field insufficiently connected to the SF of EE, but the results of the research were needed to be reported in relation with the institutions connected to this SF.

The understanding how the final theses are connected with the SF is clarified well with the help of Figures 11 and 12 in the SER, where the connection of both study circle topics of the theses with the research areas are presented together with the numbers of theses covering different research areas. Additionally, it can be seen also from the titles of the theses, e.g. Annexes 2A and 2B.

(2) Expert judgement/indicator analysis

VGTU encourages the teaching staff generally, but particularly from the SF of EE to build new contacts with the research groups around the world. It must be stressed that this question answers not easily, because different communities are in discussions, when we are talking about the R&D activities or we talk over the problems connected to teaching and training of students. One thing is clear that both, wider international and domestic cooperation improve the quality level in both directions of activities, e.g. the figure 15 in SER, where number of contracts (all together 361)versus different institutions has been presented. This figure shows clear prevailing of companies and academic institutions in numbers, which is a positive sign taking into account that the SF of EE belongs to the engineering R&D field.

***3.2.3**. Evaluation of conditions for students to get involved in scientific (applied science, art) activities consistent with their study cycle*

(1) Factual situation

According to the SER, the analysis of SPs for SF of EE shows the significant similarity with the SPs from the many leading universities in Europe. This, in turn, forms the base to organize the specialization courses well connected to R&D activities. The most active and motivated students are involved in research project activities, prepare publications, and participate at scientific conferences, as can be followed on fig 16, page 33 in SER, which shows that each year the significant part of the thesis (about 30-40%) was related to the ongoing research projects of the department.

(2) Expert judgement/indicator analysis

The recommendation from the previous evaluation states that the relatively poor publication rate of students should be improved. The action taken was to establish the VGTU magazine titled "Science – the Future of Lithuania". In addition, the IEEE Xplore database has been made accessible for students as well. The administrative conditions for students to get involved in R&D activities corresponding to their study cycle are well elaborated. The students can use different scenarios to realize their scientific potential and to be involved in the research topics searched by different research groups.

There seems to be only few opportunities for students to do their masters' thesis in cooperation with companies.

Recommendations for this evaluation area: To take the next measures to keep the high position in R&D activities in the field of EE it is suggested to follow more intensively both the international and domestic trends and development of the research field itself.

3.3. STUDENT ADMISSION AND SUPPORT

Student admission and support shall be evaluated according to the following indicators:

3.3.1. *Evaluation of the suitability and publicity of student selection and admission criteria and process*

(1) Factual situation

As stated in the SER, the student selection, admission criteria and process are legally regulated by the Lithuanian Higher Institutions Association for Organizing Joint Admission (Lith. Lietuvos aukštųjų mokyklų asociacija bendrajam priėmimui organizuoti, LAMA BPO). This institution is authorized by the Ministry of Education Science and Sports to organize and implement national joint admission. Students are enrolled in the first cycle Electrical Engineering study programs through the national joint admission, which is organized following the National Joint Admission Procedure to the First Cycle and Integrated Studies of Lithuanian Higher Education Institutions, annually approved by the President of the LAMA BPO. Moreover, students follow the VGTU Admission Rules for both study cycles, which are updated every year in response to the changes of national regulations. Second-cycle admission takes place over two stages, where after the first stage only the vacant places are available. The information about the vacancies is available on VGTU website. Further admission periods are possible in case of remaining vacancies. Entrants are required to have completed a first cycle program in a related subject. They are ranked using a competitive score based on the grades achieved in their first-cycle studies, with possible additional points for a scientific publication. The competitive scores are published in the application system and can be appealed by the applicants.

(2) Expert judgement/indicator analysis

The suitability and publicity of selection and admission criteria and process for the students are well defined and clearly developed. In addition, the whole procedures seem to be well and easily adapted into practice. The quantitative criteria defined at the faculty for the final scoring and ranking of the students by their knowledge is well elaborated and adapted as well, which means for the first cycle the composition of the competitive scores in Mathematics, Physics, Language and Literature, and finally in one course different from the previous three.

The admission requirements for the second-cycle study programs are adequate, and the competitive score based on grades and scientific publications is fairly composed, although the addition of a component based on a motivational assessment could be considered.

The university is making good efforts to increase publicity and the number of admissions. Further opportunities lie in cooperating more with industry and focusing more on making (electrical) engineering more popular in younger students of school.

3.3.2. *Evaluation of the procedure of recognition of foreign qualifications, partial studies and prior non-formal and informal learning and its application*

(1) Factual situation

Accordingly, to SER, in 2015 the Ministry of Education and Science of the Republic of Lithuania granted VGTU the right for academic recognition of foreign qualifications provided by higher education institutions. Academic recognition of foreign qualifications is implemented by VGTU International Studies Centre as a part of the admission procedure of degree-seeking students from abroad. All legal documents and procedures are elaborated by VGTU.

(2) Expert judgement/indicator analysis

All the procedures for recognition of foreign qualifications are legally clearly described and the responsible unit at the university has been named. Because of well-developed procedures, therefore, there seems to be no serious obstacles in adoption of regulations and the system seems to work well.

The foreign students come to the VGTU SF of EE over the ERASMUS+ program and there are all together 135 active contracts available. However, the incoming students were only on the first study cycle with an increasing number of students before COVID-19 era. The reason stayed unclear. There was no data about the amount of foreign degree-seeking students in SF.

3.3.3. *Evaluation of conditions for ensuring academic mobility of students*

(1) Factual situation

The most used schematics for students to go for studies abroad in Europe is ERASMUS+. The VGTU and the Faculty responsible for SF of EE have according to the SER list of universities where to send the students for studies. Faculty of Electronics has 135 active ERASMUS Inter-Institutional Agreements with partner universities in 31 countries, with available quotas for over 1000 students and over 500 staff exchange". Because of one specialization of the SP "Electrical Energetics Systems Engineering" in SF of EE is running in English, also the foreign students are invited to study in VGTU.

(2) Expert judgement/indicator analysis

The whole system of conditions for ensuring academic mobility looks nice. The number of students being involved in exchange has an increasing trend until 2020, where COVID pandemic situation killed all possibilities to go abroad and to participate in mobility schemes.

At the meeting with students the panel noticed that, unfortunately, the students didn't demonstrate willingness to go abroad, which is a typical situation in almost all HEIs in Lithuania.

The language barrier and the combination with a job seem to be important reasons why students hesitate to go abroad. It is important to make sure there is a match between the languages students speak and the language that is used in the exchange, either by providing language training or by providing exchange opportunities that organize education in English. Virtual or blended mobility could provide useful alternatives for students who are working.

Incoming students are easily coming to the second cycle of study, where one specialization on SF of EE is taught in English.

3.3.4. *Assessment of the suitability, adequacy and effectiveness of the academic, financial, social, psychological and personal support provided to the students of the field*

(1) Factual situation

According to the SER, the both, the university and the faculty provide the academic, financial, social, psychological and personal support to the students and it seems to be adequately concluded by the panel during the discussions with students along the site visit. The introductory compass is offered during the course titled "Introduction to Studies". Career development support is also provided, for example by organizing consultations and seminars on career-related topics, and an annual Career Fair.

(2) Expert judgement/indicator analysis

Various ways of support at the faculty and university level are existing awarding the academic, financial, social, personal, and psychological assistance to students. Good example is the possibility to apply for additional financial support for example for high academic performance and for sport results. Clear legal procedures seem to be applied in these special cases.

The capacity of the psychological support could be improved.

The students have a chance to get additional consultations from their teachers to be involved in the R&D activities during the study period and before each exam, which are perceived as helpful. The introductory course also offers a good framework to give the students relevant information about support throughout the year. The university has developed a wide range of career development support services.

3.3.5 *Evaluation of the sufficiency of study information and student counselling*

(1) Factual situation

According to the SER and proofed by the discussions during the site visit, all information about the study programs is uploaded on the VGTU website and on the website of the Department of Electrical Engineering. First-year students from the SF of EE are introduced to the program tutor, who can be consulted for any study-related or other issues, and to a mentor, who is a senior student, who helps to introduce them to the university. They are also informed about the study process and structure of VGTU throughout the first semester in the "Introduction to Studies" course. Two academic hours per week are allocated for individual student consultations.

(2) Expert judgement/indicator analysis

Theoretically, the students are very well informed, and all the procedures are described with enough deepness. In reality, life differs a bit from the ideal picture, because not all the students keep all the available information in mind, especially for these procedures, which are needed very rarely.

Recommendations for this evaluation area: The number of mobile students was increasing during last year, but since then needs improvements. Therefore, it makes sense to try to increase the students' mobility in both directions (income and outgo) especially for master level students using different European and foreign countries' finance schemes.

3.4. STUDYING, STUDENT PERFORMANCE AND GRADUATE EMPLOYMENT

Studying, student performance and graduate employment shall be evaluated according to the following indicators:

3.4.1. *Evaluation of the teaching and learning process that enables to take into account the needs of the students and enable them to achieve the intended learning outcomes*

(1) Factual situation

The SPs in SF of EE are designed in the best understanding to achieve strategic goals of the university and faculty. The main goal is to educate highly qualified specialists for industry and research institutions as well. The studies take place in two forms: full time and part time studies.

According to the SER, the criteria for assessment of learning outcomes are defined in the Description of the Procedure for Evaluation of Student Achievements and Organization of Assessments approved by the VGTU Senate's Resolution No. 107-2.3 as of 11 December 2018. The students' knowledge and skills are evaluated against a ten-point grading system (in accordance with the Minister's of Education and Science Order "On Learning Outcomes Assessment System "No. ISAK-2194, 2008), which is directly related to learning outcomes and based on the cumulative assessment criteria defined in the above mentioned Procedure. The students' knowledge and skills are applied and improved during traineeships, which are organized in accordance with the Procedure for Organizing Traineeships at First and Second Cycle Studies, approved by the VGTU Rector's Order No. 1028 in force as of 6 October 2015. To take into account the needs of the students and encourage the students' involvement throughout the study period, the university applies the cumulative assessment of achievements.

First-cycle students in Automation and Electrical Energetics Engineering have the opportunity to further enroll in the Master's programs at VGTU, and also qualify for respectively 18 and 8 different Master's programs in all of Lithuania. Second-cycle students can continue their studies at PhD level after graduating.

(2) Expert judgement/indicator analysis

The system applied seems to work well, which was mentioned also by the students at the site visit. The needs of the students are considered, and the students have the possibility to achieve the intended learning outcomes described for the SF of EE. This is proven by the fact that both teaching and learning processes are discussed with the industry representatives and the feedback is evaluated and considered for future activities in development of the SF of EE. According to the industry representatives, students could have more contact with companies during their studies, e.g. through company visits, fulfilling practical designs, etc.

Only cumulative assessment, containing interim assessments and possibly a component for students' active work, is mentioned as a strategy to ensure students' active involvement in the learning process. The introduction of more active and student-centered learning and teaching methods could help increase students' involvement. Students mentioned that some lectures could be made more interactive, indicating a wish for more varied and innovative teaching techniques. Graduates have a wide range of opportunities for further studies.

3.4.2. *Evaluation of conditions ensuring access to study for socially vulnerable groups and students with special needs*

(1) Factual situation

As stated in the SER, the faculties of VGTU apply a flexible schedule of assessments for students with a disability taking into account their needs and level of disability. In cases of severe disability, students are partially or completely exempt from tuition fees. Since 30 April 2012, the State Studies Foundation implements the project "Ensuring the Accessibility of Studies for Students with Special Needs". This project allows VGTU students with disabilities receiving support in various ways. For example, the students with disabilities that meet the criteria established in legal acts and have no academic debts are granted a monthly allowance of 152EUR. Through the project, VGTU also received special software and hardware to adapt the environment for disabled students, and they can also rely on specialists to support disabled students and train teaching staff. Additionally, for example the possibility exists to hire the personal interpreter in case of deaf or half-deaf students. The infrastructure of the university is also adapted to people with movement disabilities. The university psychologist can support students with learning disabilities.

(2) Expert judgement/indicator analysis

The universities including SF of EE, are using the opportunities for students from different social groups. Students with special needs can rely on various types of support, including adapted infrastructure and equipment, specialists that can apply individualised study methods, and financial support. This financial support is aimed at increasing the student's accessibility of studies and also the socially vulnerable groups and students with special needs, who are important persons at the Faculty and University as well. The availability of these extensive different types of services shows that students with all kinds of special needs can make use of the support they require at VGTU.

3.4.3. *Evaluation of the systematic nature of the monitoring of student study progress and feedback to students to promote self-assessment and subsequent planning of study progress*

(1) Factual situation

The action plan of VGTU for ensuring better students' achievements has been developed under the title "Plan of Measures for Monitoring and Improving Student Achievement". According to this plan, the tasks and measures for monitoring and improving achievements are presented in the table on page 47 (the table defines tasks, measures and the responsible unit as well for such an approach) of SER. These plans include registering cumulative scores in the VGTU information system, collecting and analysing information on the reasons for drop-out, analysing results of the students of each SP after each session, and observing a lecture in each course. Self-assessment of students happens generally on the basis of semesters after finishing the courses. Still it is the fact that about 30% of started masters' students in 2016-2019, dropped out from the SF of EE as can be seen from the students' progress data.

(2) Expert judgement/indicator analysis

The systematic monitoring of study progress of students is an important part of the study process at the University, particularly in SF of EE. Yearly reports are composed within the SF of EE.

The number of students dropping out of the masters' programme is quite high. The university should investigate the reasons why so many students drop out and see if preventative actions could be taken. Perhaps communicating more realistic expectations about the programme to applicants, or providing more distance learning opportunities, could help working students to succeed more.

3.4.4. *Evaluation of the feedback provided to students in the course of the studies to promote self-assessment and subsequent planning of study progress*

(1) Factual situation

The feedback system is developed in order to monitor the quality of the study process and is implemented through systematic surveys of as many members of the community as possible. The VGTU Rector with his Order No. 425 forced on 9 May 2018 approved the Description of the Procedure for Organizing the Surveys of Study Process Participants.

The results of above mentioned surveys are regularly analyzed and disseminated. They are discussed at rectorate, meetings of academic university units and Study Program Committees as well as at meetings with students. Students' opinion has a direct impact on final decisions regarding the study process improvements.

With regards to feedback from teachers to students, only the publication of assessment results on Moodle was mentioned, as well as the consultations that are organised throughout the semester and before exams.

(2) Expert judgement/indicator analysis

The feedback about the studies is collected and evaluated on a yearly basis. Student representatives are informed about the results. Results of surveys are applied to update study programs, improve the organization of the study process, and strengthen the composition and skills of the academic staff. This is the traditional, but well-developed agenda for almost all approaches.

Besides the publication of intermediate and final assessments of courses and the presence of consultations during the semester and before exams, the panel did not see a strategy for giving students regular feedback about their study progress. It would be beneficial to provide students with more qualitative feedback (e.g. verbal or textual indications of areas where they could do better, especially after intermediate and final exams) at regular times. Also, it would

be useful to monitor individual students' performance throughout the program, to identify students that could potentially drop out and provide them with support, to prevent drop-out.

***3.4.5**. Evaluation of employability of graduates and graduate career tracking in the study field*

(1) Factual situation

The Department representatives are continuously in contact with the graduates. The Department collects information on their further career path. Further information on other University alumni is gathered through contacts with graduates. Feedback from the employed graduates is collected, especially from graduates in management positions, which could be considered as a career tracking approach.

(2) Expert judgement/indicator analysis

Most companies related to the electrical and electronics industry employ the graduates of VGTU EE SF. Majority of students stated that they were employed already during the study period. The leaders of the SF of EE are involved in meetings and discussions of students and company representatives. For example, recently the meeting with alumni in management positions with recent study field graduates was organized.

While the university follows graduates' career path through personal contacts with them, they do not appear to gather hard data about the employment of graduates or the evolution of the types of jobs the graduates have throughout the years. It is important to have such a career tracking approach, which could be used for many purposes, e.g. through the introduction of career tracking best examples to try to attract more applicants to start the studies in the SF of EE.

***3.4.6.** Evaluation of the implementation of policies to ensure academic integrity, tolerance and non-discrimination*

(1) Factual situation

The SER states that the implementation of SPs within the SF of EE follow the VGTU Code of Academic Ethics, approved by the Resolution of VGTU Senate No. 116-3 in force as of 18 February 2020, which promotes the University quality culture of study and research activities and defines the principles and means of academic integrity, transparency, tolerance and non-discrimination. The Code also provides for liability for violation of academic ethics.

(2) Expert judgement/indicator analysis

The policy of ensuring academic integrity, tolerance and non-discrimination is very well developed and it is legislated and regulated trough university level documents and procedures. At the site visit no incidence was reported during the last three years.

3.4.7. *Evaluation of the effectiveness of the application of procedures for the submission and examination of appeals and complaints regarding the study process within the field studies*

(1) Factual situation

A set of university level documents describe the procedures for the submission and examination of appeals and complaints regarding the study process within the SFs. In case of the violation of the Code of Academic Ethics (e.g. repeated cheating), the Dean submits a request to the Rector for student's expulsion. No appeals or complaints have been submitted about study programmes in the SF EE in the last three years.

(2) Expert judgement/indicator analysis

The procedures for the submission and examination of appeals and complaints regarding the study process within the SFs are well legislated by the university. It seems that they cover all important aspects for protection of students and employees.

Recommendations for this evaluation area: The number of students dropping out of the masters' programme is quite high. The university should investigate the reasons why so many students drop out and see if preventative actions could be taken.

3.5. TEACHING STAFF

Study field teaching shall be evaluated in accordance with the following indicators:

3.5.1. *Evaluation of the adequacy of the number, qualification and competence (scientific, didactic, professional) of teaching staff within a field study programme(s) at the HEI in order to achieve the learning outcomes*

(1) Factual situation

A certain number of legal documents define the quality and adequacy of persons, their qualification and competencies of teaching staff. The number of teaching positions at faculties are determined by the rules of the university. The appointment to the position of lecturer,

associate professor or professor takes place through the competition with a fixed term of maximum 5 years.

Approximately two thirds of whole staff are involved in the study process. This is a good ratio even in international comparison for the research universities, where about 30% of staff is not directly connected to the teaching and training activities. University has clear rules for the nominal working schemes for teachers. Teaching staff are appointed to their position through the public competition. Fixed-term employment contracts are awarded for a 5 years period. Persons, appointed for the second time in a row for the same position of a lecturer or of a researcher, will get an indefinite duration contract for that position.

(2) Expert judgement/indicator analysis

The staff for the SF of EE is very well experienced. The majority of the staff for the SF of EE are full time employed. The age distribution of the staff is normal. However, during the last analysis period the number of staff has slightly decreased due to a decrease of the number of students. Still the number of students per teacher is sufficiently good. The career development plan seems to be functioning well at the VGTU.

The documentation presented does not include the rate of duties between their primary role at the primary institution and between their secondary role at the secondary institution.

The English language level of the teaching staff is generally good and it improves significantly by the younger part of the teaching staff.

3.5.2. *Evaluation of conditions for ensuring teaching staffs' academic mobility (not applicable to studies carried out by HEIs operating under the conditions of exile)*

(1) Factual situation

According to the SER, the special document titled "The Description of the Staff Internship Procedure, approved by the Resolution of VGTU Senate No. 90-2.5 as of 28 June 2016", defines the conditions, organization and reporting procedure as well as guarantees applied to employees during internships at companies or institutions in Lithuania and abroad.

The mobility of teaching staff before the COVID-19 time had grown along years using mainly ERASMUS+ schemes, but also other financial possibilities were used, like research projects resources or international scholarships. University and faculty staff are encouraged to use mobility exchange programs for teaching and learning exchange activities. However, the number of outgoing teaching staff is rather small (incoming 12, outgoing 2 accordingly SER table 7 page 55).

(2) Expert judgement/indicator analysis

The actions taken to improve the situation in mobility has shown in numbers for the mobility of the staff before COVID-19 time. Positively should be mentioned that not only the VGTU teachers travelled into other universities or conferences, but also the visitors from abroad visited VGTU and their competences were used keeping the lectures for the students from SF of EE. However, the mobility of the staff should be improved in the future. One suggestion for mobility improvement could be done that the geography of targeted universities should be widened and better focused. Another suggestion is that more members of the teaching staff must be included in the income/outgo approach in the future.

3.5.3. *Evaluation of the conditions to improve the competences of the teaching staff*

(1) Factual situation

As stated in the SER, VGTU teaching staff regularly improves their research, academic and didactic competences. Teachers develop their research competence by preparing research papers, participating in R&D projects, taking part in national and international conferences or exchange programs. Research competencies are assessed on a regular basis following the VGTU Description of the Procedure for Organization of Competitions for Teacher, Researcher and Research Fellow Positions, Procedure for Attestation and Setting Minimum Qualification Requirements (2018). Academic competencies are further developed and assessed following the Description of the Staff Internship Procedure (2016).

(2) Expert judgement/indicator analysis

The conditions for the improvement of the qualification of the teaching staff for the SF of EE are well organised and supported by the VGTU and the faculty. For example, the training certificate is submitted to the Group of Educational Competencies for further verification of acquired competencies, which is implemented by the Commission formed by the Rector. The next positive moment to mention is that the development of didactic competencies of teaching staff is linked to the attestation procedure.

Recommendations for this evaluation area: The mobility of the staff should be improved in the future. For one side the improvement of the geography of targeted universities should be widened and better focused. Another suggestion is that more members of the teaching staff must be included in the income/outgo approach in the future.

3.6. LEARNING FACILITIES AND RESOURSES

Study field learning facilities and resources should be evaluated according to the following criteria:

3.6.1. *Evaluation of the suitability and adequacy of the physical, informational and financial resources of the field studies to ensure an effective learning process*

(1) Factual situation

The physical and informational resources are available. Lectures take place at 11 auditoriums of the Faculty of Electronics equipped with lecturers' computer workstations with video projectors and 3 computer classes (SER: Table 10, page 59). The Department also possesses 14 additional rooms for academic and technical staff. In addition, students' laboratory works, and traineeships take place in specialized research laboratories in the field of EE. Additionally, other University units, such as Audio, Painting, Electronics, Photo/Video, Wood, Metal and Montage workshops, etc. are in use that best meet the student's needs and expectations.

(2) Expert judgement/indicator analysis

The situation of the infrastructure and laboratory facilities is generally well developed, especially taking into consideration the general financial situation in Lithuania and available sources for Universities and Colleges. The donation of companies (SER table 12, page 61) is well used for the purposes to upgrade the facilities, as seen in the presented videos made by the VGTU introducing the SF of EE. Due to the relatively low number of students, the available learning facilities give the excellent possibility for teaching and training the students on a high-quality level. The presented film gave a sufficient clear picture about the situation.

In the campus where the classes take place nowadays, some laboratories seem to no longer be very up to date. There is also a lack of places for students to collaborate on group projects and organize extracurricular activities. It appears that this will be resolved by the planned move to VGTU's main campus but requires attention.

3.6.2. *Evaluation of the planning and upgrading of resources needed to carry out the field studies*

(1) Factual situation

It seems that the development of the laboratory base for SF of EE is a part of the VGTU and the Faculty Development Plan. Important to mention, that access to international databases exists, as shown in the SER (page 63). The access to the library is good, but nowadays the role of the library is changing and remains changed also after the COPPVID-19 era. Almost all activities already are done remotely today.

(2) Expert judgement/indicator analysis

The infrastructure required for SF of EE studies is excellent; the laboratories are equipped with advanced technological equipment that is constantly supplemented and renewed. For example, yearly 130kEUR-140kEUR is planned to invest into upgrading the infrastructure. Extremely well equipped the labs for the first cycle of studies (bachelor). Remarkably positive is the access to e-book databases (seven names), and e-journals databases (14 names).

Recommendations for this evaluation area: To continue with practical measures improving the quality of learning facilities and to try to keep them on an achieved level as has been done during the period after previous evaluation.

3.7. STUDY QUALITY MANAGEMENT AND PUBLICITY

Study quality management and publicity shall be evaluated according to the following indicators:

3.7.1*. Evaluation of the effectiveness of the internal quality assurance system of the studies*

(1) Factual situation

As stated in the SER, the quality of the university studies is ensured by applying the internal study quality assurance system, external study evaluation and accreditation, external evaluation and accreditation of the University as well as participation of staff, students and social partners in the processes of study quality improvement. The internal system of the study quality assurance for SF of EE bases on the Standards and Guidelines for the Quality Assurance in the Higher Education Area, and is legislated with the "Description of Internal Study Quality Assurance, approved by the Resolution of VGTU Senate No. 118-1 as of 19 May 2020".

(2) Expert judgement/indicator analysis

The Study Quality Assurance System (SQAS) for the SF of EE is defined according to the documents indicated in SER. It seems that this System involves all internationally understandable procedures. Accordingly, the applied system seems very well allowed to manage the problems to be solved.

3.7.2. *Evaluation of the effectiveness of the involvement of stakeholders (students and other stakeholders) in internal quality assurance.*

(1) Factual situation

The SQAS is based on active cooperation and joint actions between the representatives of VGTU SF of EE and stakeholders for improvement of the study process. SER gives clear understanding how all four Study Program Committees for the first and the second cycle SPs in the SF of EE have been formed and approved, each containing three to six teachers, one student representative and one social partner representative. Due to relatively quick changes in technology and in the situation on the work market, the regular meetings with industry representatives take place. The external representatives from industry are members of the final thesis defense committees.

Meetings with students are also held to discuss the results of surveys, and their opinion is taken into account when deciding on the study process improvements.

There is also a university-wide student union, VGTU Students' Representation, who represent the students' interests. They have a branch in each Faculty. They are not only participating in the activities of the Study Committee, but are also organising student surveys, meetings, discussions and conferences.

(2) Expert judgement/indicator analysis

During the discussions at the site visit with the representatives of different interested groups connected with the SF of EE it clarified that the involvement of alumni, representatives of industry, and students is regular and they are taking part in the quality assurance of the SF of EE. The stakeholder observations on the implementation and quality of the field are considered and implemented. The employment opportunities for graduates are discussed as well. The system management by the SF of EE Study Committee seems to function very well.

The students that were present at the site visit were aware of the student union and confirmed that the student representatives were chosen by the students, and that the student union is available for any questions or problems, and functions as a bridge between students and teachers and the administration. This shows that the student union is working well and that there are good systems in place for students to get involved. Students can also raise any problems with the Department themselves.

3.7.3. *Evaluation of the collection, use and publication of information on studies, their evaluation and improvement processes and outcomes*

(1) Factual situation

In the SER, it is stated that the VGTU information system (is.vgtu.lt) consists of several subsystems. One of them is dedicated to the management of SPs. Another subsystem is designed to manage student data on admissions, intermediate and final assessments, enrolment in electives and alternative courses as well as thesis topics. The teaching staff has its own subsystem, which provides the list of students that are enrolled to the course. From 2019, all university documents are managed and stored in the VGTU Document Management System (DMS).

(2) Expert judgement/indicator analysis

The collection, use and presentation of information on studies, their evaluation and improvement processes and learning outcomes is well organized. For example, the SPs objectives and intended learning outcomes are presented in detail on the VGTU website, as well as in the is.vgtu.lt. In addition, the links to VGTU website are available to pupils, students and other social partners via the study portals and other targeted websites, like AIKOS and LAMA BPO.

3.7.4. *Evaluation of the opinion of the field students (collected in the ways and by the means chosen by the SKVC or the HEI) about the quality of the studies at the HEI*

(1) Factual situation

According to SER (e.g. page 69), the survey system at VGTU collects the opinions of all stakeholders. The system consists of LimeSurvey application, Oracle database, mano.vgtu.lt intranet interface and "Survey" segment of the VGTU Information system (is.vgtu.lt). Students and Faculty complete surveys via the mano.vgtu.lt.

Four main types of surveys are being held: one every semester, about the study process, one for exchange students, one for graduates, about the entire programme, and one for drop-outs. The results are regularly analysed to develop recommendations for the improvement of the study process.

(2) Expert judgement/indicator analysis

Based on the SER, it was difficult to judge the system for evaluating the quality of studies together with the feedback system. During the site visit, the problem was elaborated, e.g. the students' opinions are asked at least once a study year, but normally in every semester. It

seems that the opinion of stakeholders and students about the quality of studies is collected and evaluated properly.

Recommendations for this evaluation area: The feedback system for students and employers should be made better visible in the future and the stakeholders and students should be encouraged to use it more widely.

IV. EXAMPLES OF EXCELLENCE

Core definition: Excellence means exhibiting exceptional characteristics that are , implicitly, not achievable by all.

None found.

V. RECOMMENDATIONS

1. To continue with all major innovative actions taking place during the period after previous evaluation in the field of study aims, learning outcomes and content of the SF of EE.
2. To take the next measures to keep the high position in R&D activities in the field of EE it is suggested to follow more intensively both the international and domestic trends and development of the research field itself.
3. The number of mobile students was increasing during last year, but since then needs improvements. Therefore, it makes sense to try to increase the students' mobility in both directions (income and outgo) especially for master level students using different European and foreign countries' finance schemes.
4. The number of students dropping out of the masters' program is quite high. The university should investigate the reasons why so many students drop out and see if preventative actions could be taken.
5. The mobility of the staff should be improved in the future. For one side the improvement of the geography of targeted universities should be widened and better focused. Another suggestion is that more members of the teaching staff must be included in the income/outgo approach in the future.
6. The feedback system for students and employers should be made better visible in the future and the stakeholders and students should be encouraged to use it more widely.

VI. SUMMARY

The SER reads well, is logically composed, and contains all necessary information. The site visit clarified some minor misunderstandings from the SER. The positive aspects are as follows:

The study aims, outcomes and content for second level studies (master's degree studies) are developed on a very good level.

Links between science and study activities are of very good level. Minor improvements in international context should be made.

Student admission and support is developed on a very good level taking into account the situation in the field of engineering sciences in Lithuania.

Studying, student performance and graduate employment area is very well elaborated for the SF of EE at the VGTU.

The teaching staff is very well prepared, the number of PhD holders is sufficiently high, and the total quality level of the teaching staff is high. The general evaluation is close to excellent in the domestic environment. The leading persons are highly recognized also internationally.

The learning facilities and resources are remarkably well developed for both circles of studies. Some upgrades could be suggested for the second circle level labs. All the stakeholders and the students agreed with this conclusion.

The study quality management and publicity are developed in an adequate way and applied well.

Minor weakness to be mentioned: if the Faculty wishes to keep two different SPs in the SF of EE, they should be elaborated very deeply and the proper decision should be made soon. Although the study aims, outcomes and content for the first level studies are developed are on a good level.

Two ideas to think about:

(1) The situation of small admission numbers of students on both study levels is a general problem for engineering studies in Lithuania and it is well known. To try to increase the number of candidates for master studies at the universities the flatten courses for College graduates (3 years bachelor) should be unpriced to encourage the College graduates to continue in universities master studies.

(2) Because of relatively large overlapping courses by the content for both SPs on bachelor level, it could be weighted up to merge the both bachelor SPs into one.

Expert panel:

1. **Prof. Dr. Toomas Rang (panel chairperson)** *academic,*
2. **Prof. Dr. Marko Čepin,** *academic,*
3. **Dr. Isabelle Avenas-Payan,** *representative of social partners,*
4. **Dr. Dainius Balbonas,** *academic,*
5. **Dr. Rolandas Urbonas,** *representative of social partners'*
6. **Mr. Ruben Janssens,** *students' representative.*